IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method of depositing a pattern of nanostructure-containing material onto a substrate, the method comprising:

(i) forming a suspension of pre-formed nanostructure-containing material in a liquid medium;

(ii) masking at least a portion of at least one surface of the substrate by depositing of a layer of photoresist on the surface of the substrate and forming a pattern of openings therein by UV photolithography;

(iii) immersing electrodes in the suspension, wherein at least one of the electrodes comprises the substrate or is electrically connected to the substrate; and

(iv) applying a direct or alternating current to the immersed electrodes thereby creating an electrical field between the electrodes; whereby the nanostructure-containing material is caused to migrate toward, and attach to, areas of the substrate exposed by the mask.

2. (Original) The method of claim 1, further comprising adding a chemical to the suspension that promotes migration of the nanostructure-containing material to the substrate.

3. (Original) The method of claim 1, wherein the nanostructure-containing material comprises at least one of nanotubes, nanowires and nanoparticles.

4. (Original) The method of claim 3, wherein the nanotubes comprising at least one of the following elements: carbon, boron, nitrogen, oxygen.

5. (Original) The method of claim 2, wherein the nanowires comprising at least one of

the following: silicon, germanium, elemental metal, oxide, carbide, nitride, or chalcogenide.

6. (Original) The method of claim 3, wherein the nanoparticles comprise at least one of the following: elemental metal, elemental and compound semiconductor, oxide, or polymers.

7. (Original) The method of claim 1, wherein the nanostructure-containing material comprises at least one of single-walled and multi-walled carbon nanotubes.

8. (Original) The method of claim 1, wherein the nanostructure-containing material comprises single-walled carbon nanotubes.

9. (Original) The method of claim 4, wherein the single-walled carbon nanotubes are pre-formed by laser ablation, arc-discharge, or chemical vapor deposition.

10. (Original) The method of claim 1, wherein the pre-formed nanostructure-containing material comprises single-walled carbon nanotubes, and the method further comprises shortening the pre-formed single-walled carbon nanotubes by chemical reaction or mechanical processing prior to their introduction into the suspension.

11. (Original) The method of claim 10, wherein the method further comprises annealing the pre-formed nanotubes at 100ºC-1200 ºC in a vacuum prior to their introduction into the suspension.

12. (Original) The method of claim 10, wherein the length of the carbon nanotubes is in the range of 0.1-100 micrometers.

13. (Original) The method of claim 1, wherein the liquid medium comprises at least one of water, ethyl alcohol, and isopropyl alcohol.

14. (Original) The method of claim 1, wherein step (i) further comprises either application of ultrasonic energy or stirring thereby facilitating the formation of a stable suspension

15. (Original) The method of claim 2, wherein the chemical comprises at least one of $MgCl_2$, $Mg(NO_3)_2$, $La(NO_3)_3$, $Y(NO_3)_3$, AlOH, $AlCl_3$, and sodium hydroxide.

16. (Original) The method of claim 15, wherein the concentration of the charger is on the order of less than 1% by weight.

17. (Original) The method of claim 1, wherein the substrate comprises an electrically conductive material or a semiconductor material.

18 (Original) The method of claim 1 wherein the liquid medium comprises alcohol and the nanostructure-containing material single-walled carbon nanotubes, and step (i) further comprises forming a suspension having a concentration of 0.01 mg/liter to -1 g/liter.

19. (Original) The method of claim 1, wherein step (iv) comprises applying direct current to the electrodes.

20. (Original) The method of claim 19, wherein the electrical field applied between the two electrodes is in the range of 0.1-1000V/cm and the direct current is in the range of 0.1-200 mA/cm^2.

21. (Original) The method of claim 19, wherein step (iv) further comprises applying direct current to the electrodes for a time period of 1 second-1 hour.

22. (Original) The method of claim 19, wherein step (iv) comprises creating an electrical field between the electrodes of at least 20V/cm in intensity.

23. (Original) The method of claim 1, further comprising the steps of:

(v) removing the electrodes from the suspension; and

(vi) annealing the coated substrate.

24. (Original) The method of claim 23, wherein step (vi) comprises a two-step anneal, comprising heating the coated substrate to a first temperature for a selected period of time, then heating the coated electrode to a second temperature for a selected period of time.

25. (Original) The method of claim 1, wherein step (i) further comprises adding to the suspension at least one of: metal particles, metal oxide particles, glass particles, or a binder material.

26. (Original) The method of claim 25, wherein the additional materials comprise at least one binder material, wherein the binder is present in an amount ranging from 0.1-20 weight % of the nanostructure-containing materials.

27. (Original) The method of claim 26, wherein the binder is at least one of poly(vinyl butyral-co vinyl alcohol-co-vinyl acetate) and poly(vinylidene fluoride).

28. (Original) The method of claim 25, wherein the additional materials comprise

small particles of at least one of: iron; titanium; lead; tin; or cobalt; and wherein the particles have a diameter less than 1 micrometer.

29. (Original) The method of claim 1, further comprising pre-coating at least one adhesion promoting layer onto the substrate prior to coating with the nanostructure-containing materials.

30. (Original) The method of claim 29, wherein the adhesion-promoting layer comprises at least one of: iron; titanium; cobalt; nickel; tantalum; tungsten; niobium; zirconium; vanadium; chromium; and hafnium.

31. (Withdrawn) A patterned single-walled carbon nanotube film having a low threshold electrical field for electron emission, high emission current density, high total current output and long-term electron emission stability, the film formed by the method of claim 1.

32. (Cancelled) ~~The method of claim 1, further comprises the steps of: deposition of a layer of photoresist on the surface of the substrate; and forming a pattern of openings therein by UV photolithography.~~

33. (Currently Amended) The method of claim [[32]] 1, wherein the thickness of the photoresist layer is in the range of 1-100 microns.

34. (Currently Amended) The method of claim [[32]] 1, further comprising the step of removing the photoresist layer after deposition of the nanostructure-containing material.

35. (Original) The method of claim 34, wherein the photoresist layer is removed by a

methods chosen from: dissolving in a solvent, sonication, and preferential decomposition.

36. (Original) The method of claim 32, wherein the photoresist layer is insoluble in liquid.

37. (Original) The method of claim 32, wherein the photoresist layer is insoluble in alcohol.

38. (Currently Amended) The method of claim 12, wherein the photoresist [[is]] layer comprises negative-type epoxy based material.

39. (Original) The method of claim 23 further comprising the steps of: annealing the coated substrate comprising the photoresist layer at 100ºC-400ºC; quenching the coated substrate comprising the photoresist layer to room temperature; and removing the photoresist layer.

40. (Original) A method of fabricating a patterned electron field emission cathode comprising a substrate coated with pre-formed carbon nanotube-containing material, the method comprising:

(i) preparing a stable liquid suspension or solution containing the pre-formed carbon nanotube materials;

(ii) depositing a layer of insoluble photoresist on the surface of the substrate;

(iii) patterning the photoresist such that openings are formed in the photoresist layer corresponding to areas on the substrate onto which carbon nanotube-containing material is to be deposited;

(iv) inserting two electrodes into the said liquid where the said substrate is, or is electrically connected to, one of the two electrodes, and applying an electrical field between the two electrodes such that the carbon nanotube-containing material is

deposited on the surface of the said substrate corresponding to the openings in the photoresist layer; and

(v) removing the photoresist layer from the substrate.

41. (Original) The method of claim 40, wherein the substrate comprises a plurality or a pattern of conductive contacts disposed on the surface of an insulating or semiconductor material.

42. (Original) The method of claim 40, wherein the method further comprises activating the carbon nanotube-containing material after step (v).

43. (Original) The method of claim 42, wherein the activation process comprises removal of excess carbon nanotubes that are not bonded to the substrates and removal of non-uniform carbon nanotube protrusions.

44. (Original) The method of claim 40, wherein step (iv) is a plurality of times to deposit multiple layers of material.

45. (Original) The method of claim 40, wherein in step (iv) the deposition time is 0.01-30 minutes.

46. (Original) A method of fabricating a patterned electron field emission cathode comprising a substrate coated with pre-formed carbon nanotube-containing material, the method comprising:

(i) preparing a liquid suspension or solution containing the pre-formed carbon nanotube materials;

(ii) depositing a release layer on the surface of the substrate;

(iii) depositing a layer of photoresist that is insoluble in the liquid onto the surface of the release layer;

(iv) patterning the photoresist such that openings are formed in the photoresist layer corresponding to areas on the substrate onto which carbon nanotube-containing material is to be deposited;

(v) removing the release layer exposed by the said openings in the photoresist to expose substrate surfaces;

(vi) depositing the carbon nanotube containing materials onto the surfaces of the exposed substrate surfaces; and

(vii) removing the photoresist layer and the release layer from the substrate while keeping the carbon nanotube-containing materials on the substrate surface.

47. (Original) The method of claim 46, wherein the method of depositing carbon nanotube-containing materials in step (vi) comprises electrophoresis, spin coating, casting, printing, or spraying.

48. (Original) The method of claim 46, wherein the method of depositing carbon nanotube-containing materials in step (vi) comprises DC electrophoretic deposition, wherein the electrophoretic deposition comprises: inserting two electrodes into the liquid where the substrate is, or is electrically connected to, one of the two electrodes, and applying an electrical field between the two electrodes such that the carbon nanotube-containing material is deposited on the surface of the substrate corresponding to the openings in the photoresist layer.

49. (Original) The method of claim 46, wherein the carbon nanotube-containing materials comprise at least one of the following: single-wall carbon nanotubes, double-wall carbon nanotubes, multi-wall carbon nanotubes.

50. (Original) The method of claim 46, wherein the carbon nanotubes are hydrophilic.

51. (Original) The method of claim 46, wherein the substrate is indium-tin-oxide

coated glass, conducting paste coated glass, metal coated glass, metal, polymer, or Si wafer, and wherein the areas to be deposited with the carbon nanotube-containing materials are conductive.

52. (Original) The method of claim 46, wherein step (vii) comprises removing the photoresist by release layer lift-off.

53. (Original) The method of claim 46, wherein the photoresist comprises a negative epoxy based photoresist, wherein the release layer is a chemical that can be removed by certain solvents, and wherein the release layer lift-off is performed by dissolving the release layer with the solvent.

54. (Original) The method of claim 46, further comprising at least one of the following: rinsing the said substrate in solvents and baking and annealing the substrate.

55. (Original) The method of claim 46, further comprising activating the carbon nanotube-containing material after deposition.

56. (Original) The method of claim 55, wherein the activation process comprises removal of excess carbon nanotubes that are not bonded to the substrates and removal of non-uniform carbon nanotube protrusions.

57. (Original) The method of claim 56, wherein the activation process comprises at least one of the following methods: sonication, rubbing, taping, brushing, blowing, applying a large electrical field either in vacuum or with partial oxygen pressure, or plasma treatment.

58. (Original) The method of claim 46, wherein step (vi) is repeated a plurality of times to deposit multiple layers of material.

59. (Original) The method of claim 46, where the concentration of the carbon nanotube containing materials is 0.01 mg-100 mg per liter of the solvent.

60. (Original) The method of claim 48, wherein the applied electrical field for DC electrophoretic deposition is 1-100V/cm.

61. (Original) The method of claim 48, wherein in step (iv) the deposition time is 0.01-30 minutes.

62. (Original) The method of claim 46, wherein a planar dimension of the carbon nanotube pattern is no greater than 1 micron, and wherein a thickness of dimension the carbon nanotube coating is in the range of 1 nm to 10 microns.